
*BC Central Coast and North Coast
Timber Harvesting & Processing Employment Survey*

*Final Report
August 8th, 2006*

Presented to the British Columbia Ministry of Agriculture and Lands

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Acknowledgements and Disclaimer

This study was initiated by the Strategic Land Policy Branch of the BC Ministry of Agriculture and Lands. Ministry staff provided management, data and report editing support for the project and we would like to thank Ian McLachlan and Glenn Farenholtz for their assistance. Also, we would like to thank the regional and district staff of the Ministry of Forests and Range for their help in providing general information on the forest licenses in their regions.

Employment and harvest data supplied by forest licensees and contractors throughout coastal BC contributed to this study. We would like to express our sincere thanks to all the companies and their employees who expended considerable effort in completing the questionnaires. Without their help, this work would not have been possible.

In developing the industry employment estimates in this study, the consultants have made several assumptions in utilizing information gathered under the time and resource constraints imposed on this study. The assumptions are thought to be reasonable and suitable for the purposes of this analysis, but should not be relied upon for purposes other than conducting general socio-economic impact assessments.

About the Consultants

Pierce Lefebvre Consulting specializes in providing economic and management consulting services to its private and public sector clients. The company was formed in 1994 when Sylvie Lefebvre established the firm together with Claude Pierce, an economist who had been an independent consultant since 1990.

Sylvie Lefebvre is a professional economist and a Certified Management Consultant (CMC) with 24 years of consulting experience, including 12 years as principal of *Pierce Lefebvre Consulting*, 10 years at Price Waterhouse and prior to that, 2 years with a smaller B.C. consulting firm that specialized in the mining industry. Sylvie specializes in socio-economic assessments, and much of her 25 years of experience working in BC has been focused on the forest sector. She has conducted various studies that have involved the development and use of timber harvesting and processing employment coefficients. These include a study of woodflow and manufacturing facilities in coastal BC which was first conducted in 1996 for the BC Ministry of Forests and was updated in 1998 and 2003.

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Executive Summary

This report provides forest industry direct employment coefficients associated with the harvesting and processing of timber from the North Coast (NC) and Central Coast (CC) of BC. The coefficients are based on a survey of forest licensees in the areas and timber harvest data from the Ministry of Forests and Range (MOFR). Similar studies have been conducted for Haida Gwaii/ Queen Charlotte Islands (HG/QCI) (early 2005), and the Sea-to-Sky region (early 2006).

The North Coast consists of the North Coast Timber Supply Area (TSA). The Central Coast includes: the Mid-Coast sub-region, which includes the Mid-Coast TSA, TFL 25-Block 5 and TFL 39- Block 7; and the South Central Coast, which includes the mainland portions of the Kingcome and Strathcona TSAs, and the TLs and TFLs that are within or adjacent to those TSA boundaries.

Summary Of Findings

Survey data cover an estimated 77% of the total harvest volume for the NC and CC over the three years under study, namely 2003, 2004 and 2005. This is based on timber harvest data provided by the companies that participated in the survey and estimates of the total harvest in the region.

North Coast and Central Coast Study Results	3 Year Average	
	North Coast	Central Coast
Assumptions:		
Estimated Total Timber Harvest (m3)	437,695	2,627,880
Exports % (based on survey)	20.7%	0.6%
Estimated Timber Volume Processed in B.C. (m3)	347,084	2,612,346
BC Direct Employment Coefficients (PY per 000 m3):	North Coast	Central Coast
Harvesting and Silviculture (3 year average from survey)		
Harvesting/ Falling	0.480	0.315
Planning & Administration	0.096	0.061
Log Hauling / Trucking	0.005	0.010
Barging / Towing	0.042	0.019
Road Building	0.071	0.047
Silviculture	0.044	0.040
Other	<u>0.000</u>	<u>0.001</u>
Total	0.738	0.493
BC Primary Processing (Mainly Southern BC):		
Wood Processing	0.428	0.428
Pulp and Paper	0.176	0.176

Notes:

1. Harvest estimates are based on MOFR Harvest Billing System data as well as survey data. In using the MOFR data for licenses that extend over both Vancouver Island and the Central Coast, various assumptions were made to exclude the harvest from Vancouver Island. The estimates of total harvest for the Strathcona TSA and the TFLs exclude any harvest associated with BC Timber Sales.
2. The timber harvesting and silviculture employment coefficients are from the survey data. The BC primary processing employment coefficients are estimated based on Pierce Lefebvre Consulting et al., *Analysis of Woodflow in the Coast Forest Region*, 2003, and other data.

The survey data show that timber harvesting on the North Coast and Central Coast generates

0.738 direct PY of harvesting and silviculture employment per 1,000 m3 of timber harvested on the North Coast, and 0.493 direct PY per 1,000 m3 on the Central Coast. The following table provides an estimate of the direct employment associated with the North Coast and Central Coast timber harvest.

Estimated Direct Employment Associated with Annual Harvest (PY) (Extrapolated to Total Industry Based on Assumed Harvest)	3 Year Average			
	North Coast		Central Coast	
	PY	% of Total	PY	% of Total
Direct Harvesting Employment (3 year average):				
North Coast Residents	90	27.9%	29	2.3%
Terrace/ Other Northwest	90	27.9%	19	1.4%
Central Coast	3	1.0%	66	5.1%
North Island	13	3.9%	151	11.7%
Campbell River and Other Mid-Island	92	28.5%	667	51.5%
Southern Vancouver Island	9	2.9%	193	14.9%
Lower Mainland	22	6.9%	131	10.1%
Other	3	1.0%	39	3.0%
Total Harvesting and Silviculture	323	100.0%	1,296	100.0%
BC Primary Processing (Mainly Southern BC):				
Wood Processing	149		1,119	
Pulp & Paper Processing	61		459	
Total Primary Processing	210		1,578	
Total B.C. Direct Employment	533		2,875	

Notes:

1. This table provides estimates of direct harvesting employment based on assumed total levels of timber harvest and employment coefficients per m3 of timber harvest derived from the survey data; the presentation of these estimates implies a degree of precision that does not exist but the represented precision is retained to maintain the integrity of the data and methodology.
2. Excludes secondary paper manufacturing and value added wood processing sector; Source: based on Pierce Lefebvre Consulting et al., *Analysis of Woodflow in the Coast Forest Region, 2003*, and other data.

The direct employment derived from the employment coefficients and assumed timber harvest levels show the following results:

- 56% of the timber harvesting employees associated with the North Coast timber harvest reside on the North Coast, in Terrace and/or in Kitimat; 1% reside on the Central Coast, 35% reside on Vancouver Island and the balance (8%) reside in the Lower Mainland and other BC regions; and
- only 5% of the timber harvesting employees associated with the Central Coast timber harvest reside on the Central Coast; 78% reside in Vancouver Island communities, 4% reside in the North Coast, Terrace and/or Kitimat, 10% reside in the Lower Mainland, and 3% reside in other areas.

1 Introduction

This report presents the results of a survey conducted to update forest industry employment coefficients for the BC North Coast (NC) and Central Coast (CC) areas. Similar surveys were conducted for Haida Gwaii/ Queen Charlotte Islands (HG/QCI) (early 2005), and the Sea-to-Sky region (early 2006).

The methodology for the work was as follows:

- collect data on timber harvesting employment and harvest by management unit through a survey of timber licensees and logging contractors that operate in the NC and CC areas;
- collect Ministry of Forests and Range (MOFR) timber harvest data by management unit;
- estimate local direct harvesting employment coefficients per thousand m³ of wood harvested for each sub-region from the employment and harvest survey data (2003 through 2005 averages);
- estimate BC's primary wood and pulp and paper processing employment that results from the NC and CC timber harvest (based on Pierce Lefebvre Consulting et al., *Analysis of Woodflow in the Coast Forest Region*, 2003 and other data); and
- summarize the results.

This survey considers the direct employment associated with harvesting and processing timber from the NC and CC. Harvesting and processing timber from the NC and CC also generates employment through suppliers of goods and services to the forest industry (indirect employment) and through the re-spending effects of the direct and indirect employees (induced employment). Indirect and induced employment associated with the NC and CC harvest is not estimated as part of this survey.

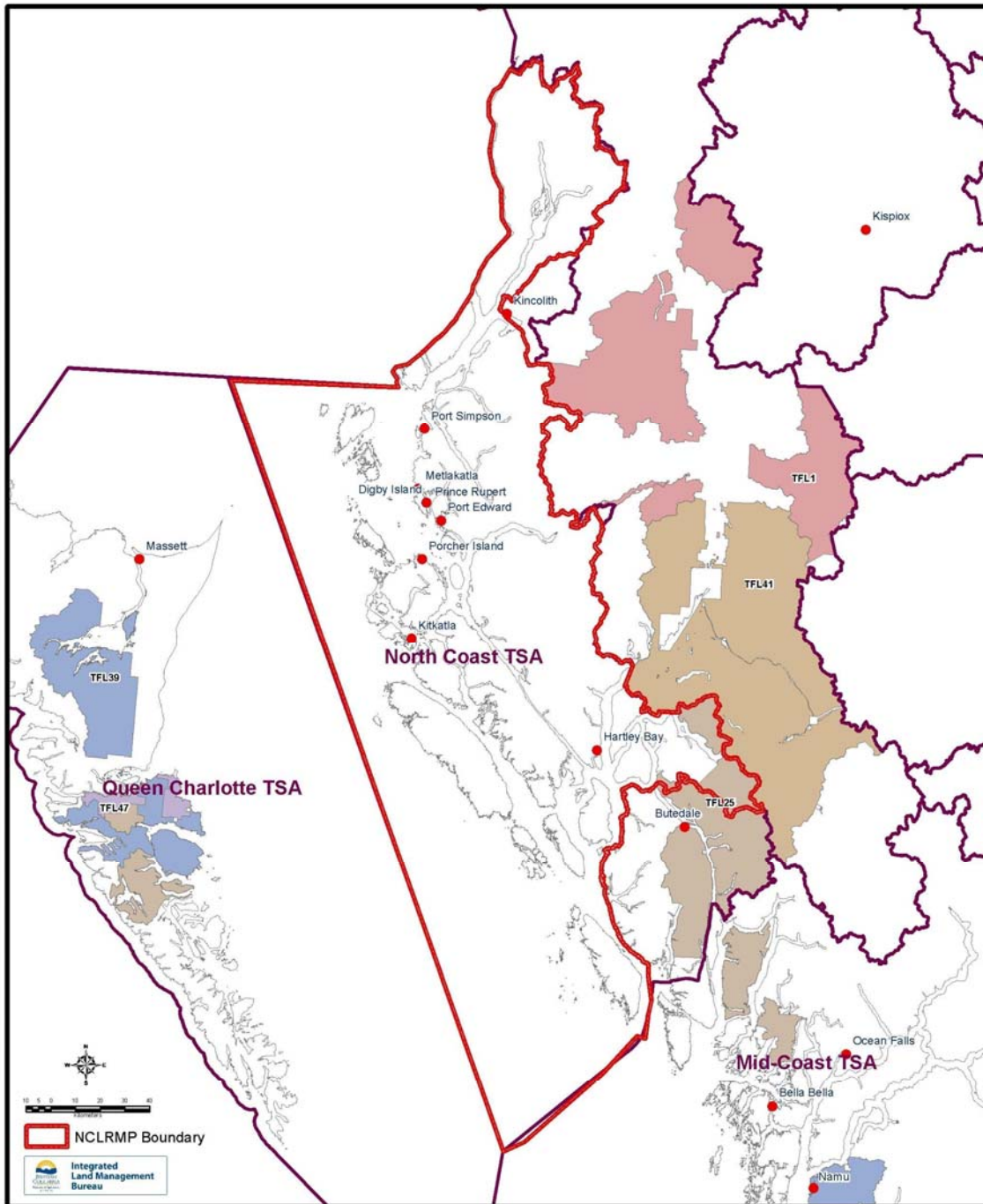
The timber harvesting industry is becoming increasingly fragmented, with major licensees hiring contractors that specialize in one or more activities (e.g. stump to dump contractors, road building contractors, silviculture contractors, etc.). Interfor, for example, has divested its helicopter timber harvesting operations into a separate company, Helifor, which continues to harvest some of Interfor's timber licenses but also works for other licensees. The survey results represent a mix of data obtained from licensees and their contractors, often involving some extrapolation or interpolation of data. The study results represent the best information that could be obtained within the time and monetary budget of the project, and given the cooperation of the licensees and their contractors.

The analysis compiles and reports data for the North Coast and Central Coast areas. The North Coast consists of the North Coast Timber Supply Area (TSA). The Central Coast includes:

- the Mid-Coast sub-region, which includes the Mid-Coast TSA, TFL 25-Block 5 and TFL 39- Block 7; and
- the South Central Coast, which includes the mainland portions of the Kingcome and Strathcona TSAs, and the TLs and TFLs that are within or adjacent to those TSA boundaries.

The maps of the North Coast and Central Coast Land and Resource Management Plan (LRMP) regions are shown following. The regions for this study follow similar boundaries as the LRMPs.

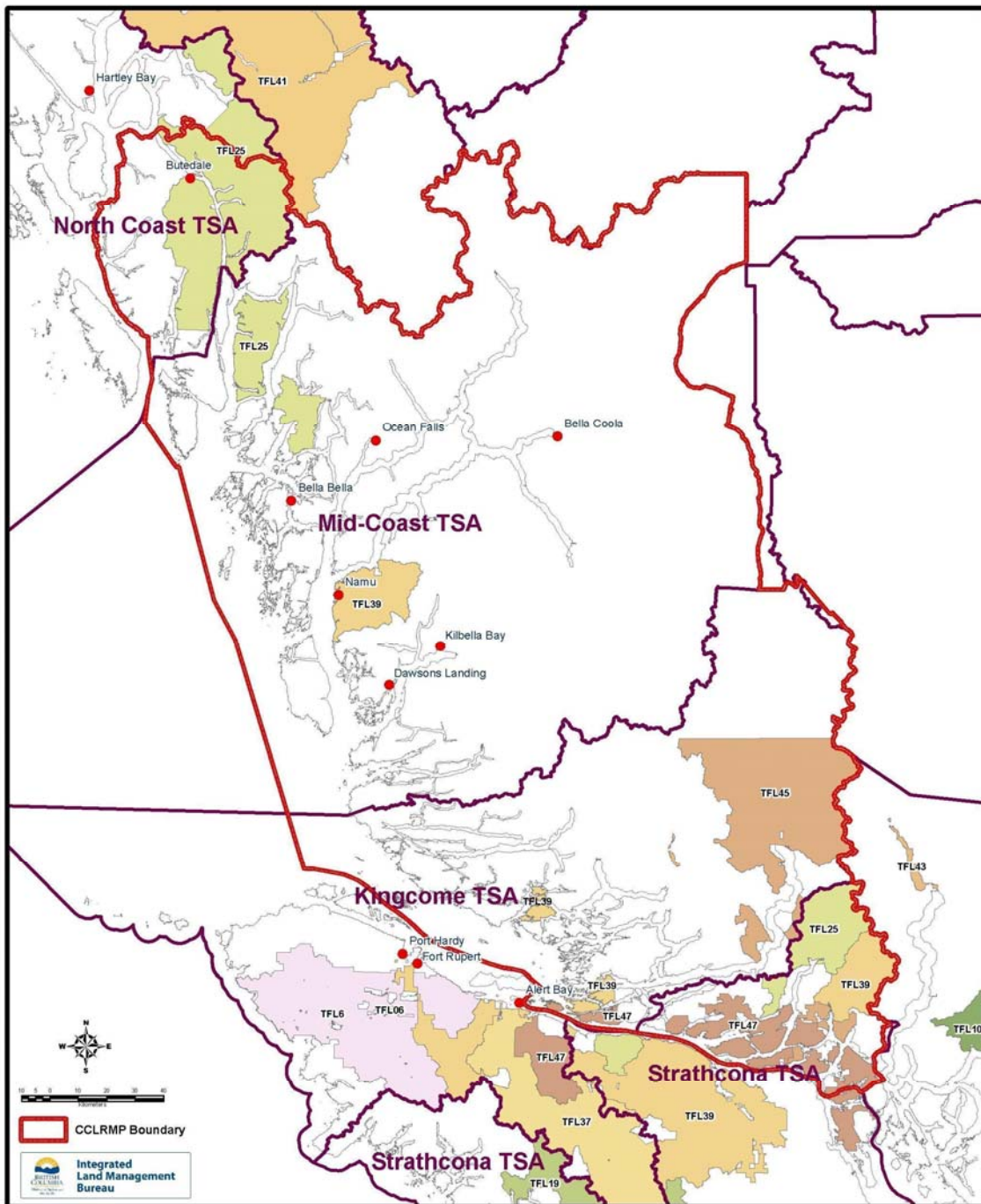
North Coast and Adjacent Timber Supply Areas



Source: BC Ministry of Agriculture and Lands, 2006.

Note: The North Coast LRMP area includes most, but not all of the North Coast TSA, as well as a small portion of TFL 25. In this study, the North Coast region includes all of the North Coast TSA and none of TFL 25.

Central Coast Area



Source: BC Ministry of Agriculture and Lands, 2006.

The following sections present key findings. The appendices to the report include more detail for each of the sub-regions listed above, as well as a list of key references.

2 Survey Coverage

The consultants surveyed each forest licensee that is named in the Ministry of Forests and Range (MOFR) 2005 timber apportionment for the North Coast and Central Coast. These include Cascadia Forest Products, International Forest Products (Interfor), TimberWest Forest Corporation, and Western Forest Products, as well as approximately ten smaller licensees. Smaller licensees listed in the MOFR timber apportionment are in some cases market loggers who obtain additional licenses from BC Timber Sales and employment in respect of that volume is also included in the survey.

Companies completed separate questionnaires for each management unit so that data could be compiled by sub-region. For the TFLs, this often meant completing individual questionnaires for each block within a TFL. All of the major timber licensees and a sample of their contractors, usually the larger contractors, participated in the survey and provided employment and harvest data. Some of the major licensees obtained and reported data from their contractors, but for others, the consultants collected information directly from contractors and combined the data with data received regarding licensee timber harvesting operations.

Only three small forest licensees and a few contractors who were contacted to participate in the survey did not supply data for the survey.

Woodlot owners and the BC Timber Sales (BCTS) logging contractors that are not specifically named in the MOFR timber apportionment were not contacted to participate in the survey. These companies are typically much smaller and are harder to identify and survey. Since the main objective of the survey is to update forest industry employment coefficients expressed in terms of Person Years (PY) of employment per 1,000 m³ of timber harvested, it is not necessary to survey 100% of timber harvesting operations. Provided that harvesting employment data are collected for a reasonable proportion of the total harvest in the region, distributed across various license types, one can be reasonably confident that the resulting employment coefficients are representative of the regional average.

Survey data cover an estimated 77% of the total harvest volume for the NC and CC over the three years under study, namely 2003, 2004 and 2005. This is based on timber harvest data by scale date provided by the companies that participated in the survey, as well as the harvest data reported in the MOFR Harvest Billing System for each of those three years. The 2003 and 2004 MOFR Harvest Billing System data are by scale date and are therefore comparable to the data provided by survey participants. For 2005, however, the MOFR data are based on billing dates, as the 2005 MOFR data by scale date were not available at the time of writing this report. As a result, the 2005 MOFR Harvest Billing System data likely cover the timber harvested and scaled in the latter part of 2004 but exclude timber harvested and scaled in the latter part of 2005.

The survey coverage by volume harvested is 100% for the TFLs, as every TFL licensee participated in the survey and provided employment and harvest data. The survey coverage is the lowest on the North Coast with survey participants accounting for 66% of the total harvest reported by the MOFR Harvest Billing System. While all the North Coast license holders identified in the MOFR timber apportionment participated in the survey, those license holders represent only 45% of the total 2005 timber apportionment. Some of these licensees, however, also reported their harvest from market logging which would be part of the BC Timber Sales (BCTS) apportionment and is not included as part of the 45% survey coverage by AAC apportionment.

The major licensees have seen their licenses reduced in 2004 and 2005 as a result of the BC government's Forestry Revitalization Plan introduced in March 2003¹ and the re-allocation of 20% of existing long term forest tenures to BC Timber Sales, First Nations, and communities. The key objective of the timber re-allocation is to significantly increase the volume of timber to be sold by public auction and to establish a more market based stumpage system. The Forestry Revitalization Plan also removed a number of tenure requirements, including minimum cut requirements, utilization requirements, appurtenancy requirements, mill closure penalties, tenure transfer penalties, and limitations on consolidations and subdivisions of forest tenures.

Table 1 Estimated Survey Coverage

Survey Coverage - Total Harvest Reported (m3) ¹	2003	2004	2005	3 Year Average	3 Year Average as a % of Total Harvest
SURVEY:					
North Coast TSA	216,232	451,272	194,366	287,290	65.6%
Central Coast:					
Mid-Coast TSA	269,601	480,350	564,864	438,272	70.8%
Kingcome TSA - Mainland Portion Only	420,503	717,998	1,015,698	718,066	66.3%
Strathcona TSA - Mainland Portion Only	71,386	14,953	24,574	36,971	100.0%
TFLs	<u>582,456</u>	<u>1,010,639</u>	<u>1,071,894</u>	<u>888,330</u>	<u>100.0%</u>
Sub-Total - Central Coast	1,343,946	2,223,940	2,677,030	2,081,639	79.2%
NC and CC Total Survey Harvest	1,560,178	2,675,212	2,871,396	2,368,928	77.3%
ESTIMATED TOTAL HARVEST²:					
North Coast TSA	271,848	741,984	299,254	437,695	
Central Coast:					
Mid-Coast TSA	320,544	650,321	885,815	618,893	
Kingcome TSA - Mainland Portion Only ³	763,277	1,063,601	1,424,181	1,083,686	
Strathcona TSA - Mainland Portion Only ³	71,386	14,953	24,574	36,971	
TFLs	<u>582,456</u>	<u>1,010,639</u>	<u>1,071,894</u>	<u>888,330</u>	
Sub-Total - Central Coast	1,737,662	2,739,513	3,406,465	2,627,880	
NC and CC Total Estimated Harvest	2,009,510	3,481,497	3,705,719	3,065,575	
Survey as a % of Total Harvest	77.6%	76.8%	77.5%	77.3%	

Notes:

1. The survey data include the timber harvest reported by licensees and their contractors and represents data by scale date for each calendar year.
2. The estimated total harvest by sub-region is based on data provided by the Ministry of Forests and Range (MOFR) Harvest Billing System (provided by Glenn Farenholtz of BC MAL, January 23, 2006). The 2003 and 2004 MOFR harvest data are by scale date and the 2005 MOFR harvest data are by billing date.
3. In using the MOFR Harvest Billing data for licenses that extend over both Vancouver Island and the Central Coast, various assumptions were made to exclude the harvest from Vancouver Island. These assumptions are detailed in the appendices to this report. The estimates of total harvest for the Strathcona TSA and the TFLs exclude any harvest associated with BC Timber Sales.

The MOFR timber apportionment and information on individual licenses for the North Coast and Central Coast by management unit is provided in Appendices 1 and 2.

¹ Source: BC Ministry of Forests, *BC Heartlands Economic Strategy - Forests, The Forestry Revitalization Plan*, www.for.gov.bc.ca/mof/plan.

In the Mid-Coast and Kingcome TSAs, all of the identified license holders in the 2005 MOFR timber apportionment participated in the survey except for three very small licensees. The timber harvest indicated by the MOFR Harvest Billing System, however, is much greater than what was reported by the licensees in the survey, likely for the reasons explained below.

- Some logging contractors rely entirely on BC Timber Sales and their data are not included.
- The 2003 and 2004 timber harvest reported in the MOFR Harvest Billing System is based on reported volumes by scale date, but the 2005 timber harvest is based on billing dates.
- The scaled data provided by licensees for 2003 and 2004 may differ from the MOFR data due to timing and reporting differences.
- The total harvest for the mainland portion of the Kingcome TSA is calculated as 81.2% of the total harvest for the Kingcome TSA. This percentage is based on the responses from the survey participants, but it may not be valid for other license holders.

3 NC and CC Timber Volumes and AAC

The following table summarizes the licensed volumes that comprise the NC and CC timber harvest. The NC TSA has an AAC of 546,624 m³ and the CC has an AAC estimated at 3.1 million m³, for a combined total AAC of 3.6 million m³. This AAC estimate excludes the BC Timber Sales allotment for the Strathcona TSA and for some of the TFLs. Over 2003-2005, the average timber harvest was 437,695 m³ in the NC and 2.6 million m³ in the CC, for a combined total of 3.1 million m³ (based on MOFR Harvest Billing System data as well as the survey data).

Table 2 NC and CC AAC and 3 Year Average Harvest

3 Year Average Estimated Harvest as a % of AAC by Type of License	AAC ¹	3 Year Average Harvest ²	3 Year Average Harvest as a % of AAC ³
North Coast TSA	546,624	437,695	80%
Central Coast:			
Mid-Coast TSA	795,000	618,893	78%
Kingcome TSA - Mainland Portion Only	1,043,132	1,083,686	104%
Strathcona TSA - Mainland Portion Only	45,581	36,971	81%
TFLs	<u>1,215,340</u>	<u>888,330</u>	<u>73%</u>
Sub-Total - Central Coast	3,099,053	2,627,880	86%
NC and CC Total	3,645,677	3,065,575	85%

Notes:

1. The AAC by management unit is from the MOFR timber apportionment in effect in December 2005 and it takes into account any temporary reductions by the Chief Forester under Part 13 of the Forest Act (e.g. 203,000 m³ for the Mid-Coast TSA). The AAC for the North Coast TSA and the Mid-Coast TSA are from MOFR. Various assumptions were made to derive the AAC for each license for the Kingcome TSA, the Strathcona TSA and the TFLs and these assumptions are detailed in Appendix 2. The AAC for the mainland portion of the Strathcona TSA and for the TFLs likely exclude most of the BC Timber Sales harvest in those areas.
2. The 3-year average harvest is based on the MOFR Harvest Billing System (provided by Glenn Farenholtz of BC MAL, January 23, 2006). The 2003 and 2004 MOFR harvest data are by scale date and the 2005 MOFR harvest data are by billing date. Table 1 provides more detail on the methodology for estimating the average harvest data.
3. One would expect the AAC to differ from the harvest. In any given year, actual log production may be lower or higher than the AAC due to market conditions and cut-control requirements (under the BC Forest Act, license holders may postpone the harvest of a portion of their AAC to another year). Also, the AAC includes timber volumes scaled and harvested as well as recoverable waste, which in 2003 was estimated at 4% for the Coast Forest Region. (Pierce Lefebvre Consulting and D.A. Ruffle & Associates Ltd., *Analysis of Woodflow in the Coast Forest Region, BC Ministry of Sustainable Resource Management*, 2003, page 10).

4 Destination of NC and CC Timber Harvest

During the period 2003 to 2005, 20.7% of the North Coast timber harvest was exported unprocessed out of BC as “raw logs”. This percentage is higher than for other BC regions as a result of recent government policies that allow up to 35% of a licensee’s North Coast timber harvest to be exported.² A large proportion of the harvest helps to supply some of the large manufacturing facilities in southern BC. BC timber processing firms can reduce exports by purchasing more logs, but recent market conditions and trade duties imposed by the US have reduced the competitive strength of these BC manufacturers vis a vis the export market.

The survey participants reported no exports from the Mid-Coast region and less than 20,000 m³ per year from the Central Coast. Combining the North Coast and Central Coast, some 3% of the total harvest reported by survey participants was exported out of BC. More logs may be exported after they are sold on the Vancouver Log Market. The major export destinations for logs from the North Coast are Japan and Korea. Major species exported from the North Coast are hemlock, balsam and some spruce. Some exports from the Central Coast consist of hemlock and fir destined for mills in the US Pacific Northwest. Some of the licensees indicated an interest in being able to export more of their logs.

Table 3 Survey Results on Destination of Timber Harvest from the NC and CC

North Coast/ Central Coast Survey Results - Destination of NC/CC Timber Harvest	3 Year Average			
	North Coast	Mid-Coast	Southern Central Coast	Total CC (Mid-Coast & South Central)
3 Year Average Export Volumes (m ³)	55,333	0	12,890	12,890
Total Reported Harvested Volumes (m ³)	287,290	543,892	1,517,967	2,061,859
Percent of Total Volumes Harvested:				
Export Volume	20.7%	0.0%	0.8%	0.6%
BC Interior	0.0%	0.0%	0.0%	0.0%
Central Coast	0.0%	0.0%	0.0%	0.0%
North Coast/ Terrace	1.9%	0.0%	0.0%	0.0%
Sea-to-Sky Region	0.0%	0.0%	0.0%	0.0%
North Vancouver Island	0.0%	0.0%	0.0%	0.0%
Campbell River & Mid-Island	0.0%	0.0%	10.1%	7.1%
Nanaimo & South Island	0.0%	16.3%	6.7%	9.5%
Lower Mainland	45.6%	45.6%	30.8%	35.2%
Vancouver Log Market	<u>31.7%</u>	<u>38.1%</u>	<u>51.5%</u>	<u>47.5%</u>
TOTAL VOLUME	100.0%	100.0%	100.0%	100.0%

As shown in Table 3, during the period 2003 to 2005, approximately 2% of the North Coast harvest was sold to sawmills in the Terrace region and the balance (after exports out of BC) was sold to mills in southern BC. There are no wood processing facilities in the North Coast, with the nearest wood

²In 2002, the B.C. government provided the right to export up to 35% of a licensee’s annual timber harvest from the North Coast Forest District (FD) and from portions of the Skeena-Stikine FD, with species restrictions on red cedar and cypress. Source: BC Ministry of Forests, *Notice to Exporters Concerning Order-In-Council (OIC) 121*, March 25, 2003; also, BC Ministry of Forests, *Updated Notice to Exporters and Major Tenure Holders Concerning Order-In-Council (OIC) #121*, April 28, 2003, available from: http://www.for.gov.bc.ca/ftp/het/external!/publish/Web/log_prices/OIC%20Restrictions.pdf.

processing and pulp and paper facilities being in the Terrace/Kitimat region.

Some 46% of the North Coast timber harvest is destined to processing facilities located in the Lower Mainland and 32% is sold on the Vancouver Log Market (VLM)³. Logs sold on the VLM provide timber for wood manufacturing facilities in the Lower Mainland and on Vancouver Island.

The timber harvest from the CC is also destined to mills in southern BC as the only wood processing facilities in the CC are very small portable sawmills that operate sporadically. Approximately 17% of the CC timber harvest is destined to mills on Vancouver Island, 36% is destined to mills in the Lower Mainland and 47% is sold on the VLM. As noted above, logs sold on the VLM provide timber for mills in the Lower Mainland or on Vancouver Island.

5 Timber Harvesting Employment Coefficients

The survey requested data on timber harvesting employment and timber harvest volumes by management unit and sub-region. Table 4 on the following page summarizes the estimated timber harvesting employment coefficients per 1,000 m³ of timber harvested. The harvesting coefficient is derived from the survey of NC and CC licensees (PY of employment divided by m³ of reported timber harvest).

There are many factors that influence timber harvesting employment coefficients over time, in any particular year, or for any particular operation.

- The percentage of timber that is harvested through conventional methods vs. helicopter logging affects the types of timber harvesting jobs, and may affect the number of jobs involved. One of the licensees operating in the NC and CC areas reported that the total number of jobs per 1,000 m³ harvested for helicopter logging tends to be similar to conventional logging, but in helicopter logging, some of the road building and trucking jobs are replaced by heli-yarding jobs. One of the licensees contacted as part of a similar survey for the Sea-to-Sky region indicated that helicopter logging required more than 50% more jobs per 1,000 m³ harvested compared to conventional logging.
- The percentage of old growth vs. second growth timber affects the total number of jobs per 1,000 m³. Second growth timber may be more uniform in size and located on flatter terrain, which might result in more labour efficient harvesting methods. For example, most of the falling may be by feller buncher with little hand falling, and yarding may be hoe-chucking rather than grapple yarding.
- The timing of the harvest within the planning cycle is another factor affecting employment coefficients. For example, a small licensee might conduct all of the harvest planning in one year and the actual harvesting in another. Using three-year averages likely smooths out some of these timing differences, but does not likely eliminate them completely.

³ The Vancouver Log Market describes the loose arrangements for selling, buying and trading logs in Coastal BC. Coastal companies trade logs on a day-to-day basis according to their mills' species, grade and size requirements, a trading pattern facilitated by the use of waterways for log distribution and storage. For more information on the Vancouver Log Market, please refer to: Pierce Lefebvre Consulting et al., *Analysis of Woodflow in the Coast Forest Region*, BC Ministry of Sustainable Resource Management (MSRM), 2003, pp 4 and 5. Available from: http://www.llbc.leg.bc.ca/public/pubdocs/bcdocs/369529/Woodflow_Report.pdf

Table 4 Direct Timber Harvesting Employment Coefficients by Sub-Region

North Coast/ Central Coast Survey Results - Person Years (PY) of Direct Harvesting Related Employment per 1,000 m3 of Timber Harvested	3 Year Average					
	North Coast		Mid-Coast	Southern CC	Total CC (Mid-Coast & South Central)	
	PY per 1,000 m3	% of Total	PY per 1,000 m3			
Harvesting/ Falling	0.480	65.0%	0.362	0.298	0.315	63.8%
Planning & Administration	0.096	13.0%	0.059	0.062	0.061	12.3%
Log Hauling / Trucking	0.005	0.7%	0.009	0.010	0.010	2.1%
Barging / Towing	0.042	5.7%	0.031	0.015	0.019	3.9%
Road Building	0.071	9.7%	0.082	0.034	0.047	9.5%
Silviculture	0.044	6.0%	0.043	0.039	0.040	8.2%
Other	0.000	0.0%	0.000	0.001	0.001	0.2%
Total	0.738	100.0%	0.586	0.460	0.493	100.0%
Direct PY by Employee Residence:						
Central Coast	0.008	1.0%	0.062	0.006	0.025	5.1%
North Coast	0.206	27.9%	0.012	0.011	0.011	2.3%
Terrace/Kitimat/ Other Northwest	0.206	27.9%	0.013	0.004	0.007	1.4%
Vancouver Island	0.261	35.3%	0.394	0.395	0.385	78.1%
Sea-to-Sky	0.000	0.0%	0.000	0.000	0.000	0.0%
Lower Mainland	0.051	6.9%	0.068	0.042	0.050	10.1%
Other	0.007	1.0%	0.037	0.003	0.015	3.0%
Total	0.738	100.0%	0.586	0.460	0.493	100.0%

Notes to Table 4:

1. The harvesting coefficients are derived from the survey of North Coast and Central Coast licensees and are based on the timber harvest reported by survey participants (Table 1) and the associated survey results on PY of employment (Appendices 1 to 4).
2. Most licensees and their contractors included all log hauling and trucking as part of harvesting; harvesting also includes camp operations and heli-yarding.
3. Timber harvesting employment includes logging, silviculture and road building operations. Road building is considered part of direct logging employment, based on discussions with Dr. Garry Horne, author of various BC Stats publications on employment multipliers⁴. Dr. Horne writes: "If the logging firm hires another firm to build roads (an establishment whose primary activity is road building), then this road construction would be considered as a separate activity from the timber cutting, and the employment involved would be considered direct construction jobs and construction multipliers would be applied. However, if the road building is carried out "in-house", as a relatively small part of the activities of a firm whose primary activity is logging, then the employment is considered part of direct logging." (Personal communication, Dr. Garry Horne, March 28, 2005). Applying the BC Stats employment multipliers (which essentially assume that some logging road builders are in the logging business while others are in the construction business) to our direct job estimates (which assume that all logging road builders are in the logging business) will likely lead to a slight over-estimate of indirect jobs.
4. The silviculture coefficient may slightly understate the jobs involved in that sector as an increasing volume of timber is harvested under tenures where the company responsible for the harvesting is not responsible for reforestation. Companies harvesting timber under various forms of tenures such as Forest Licenses and Tree Farm Licenses continue to be responsible for reforestation, but companies that are awarded BC Timber Sales are typically not responsible for reforestation as BC Timber Sales retains that responsibility. For more on Timber Tenures, refer to: BC Ministry of Forests and Range, *Timber Tenures in BC – Managing Public Forests in the Public Interest*, 2006.

⁴ For example: Horne, Dr. Garry, *British Columbia's Heartlands at the Dawn of the 21st Century, 2001 Economic Dependencies and Impact Ratios for 63 Local Areas*, BC Stats, 2004, available from: http://www.bcstats.gov.bc.ca/pubs/econ_dep/la_tabs.pdf

<http://www.for.gov.bc.ca/hth/timten/documents/timber-tenures-2006.pdf>.

The survey results reflect timber harvesting employment for the current mix of old growth and second growth, and the current mix of helicopter and conventional logging. In general, helicopter logging increased as a proportion of the total harvest in 2004 and 2005 in the North Coast and most of the Central Coast. While the survey did not formally request data on the split between helicopter and conventional logging, some of the licensees anecdotally reported that between half and 100% of their entire harvest in some of the North Coast, Mid-Coast and Kingcome TSAs was being harvested by helicopter. Where second growth is more prevalent, as in the Strathcona TSA and in the southern portion of the Central Coast, conventional logging is the norm.

Table 4 also shows the direct timber harvesting employment per 1,000 m³ by location of employee residence. This information is calculated using the employment coefficients per 1,000 m³ of timber harvested and the survey results regarding where timber harvesting employees reside. The survey results show:

- Approximately 56% of the timber harvesting employees associated with the North Coast timber harvest only, reside on the North Coast, in Terrace and/or in Kitimat; 1% reside on the Central Coast, 35% reside on Vancouver Island and the balance (8%) reside in the Lower Mainland and other BC regions.
- Only 5% of the timber harvesting employees associated with the Central Coast timber harvest reside on the Central Coast; 78% reside in Vancouver Island communities, 4% reside in the North Coast, Terrace and/or Kitimat, 10% reside in the Lower Mainland, and 3% reside in other areas.

Data on the percentage of workforce by community and by sub-region are shown in the survey results presented in the appendices.

The following table compares the data results for the NC and CC region on employment coefficients with the survey results from similar surveys conducted in early 2006 for the Sea-to-Sky region, and in early 2005 for the Haida Gwaii / Queen Charlotte Islands (HG/QCI) region. The table also compares the survey results with the employment coefficients used by MOFR as part of the socio-economic assessments conducted for the MOFR Timber Supply Reviews (TSR-1 conducted in the mid-1990s and TSR-2 conducted between 1999 and 2001).

Table 5 BC Coast Employment Coefficients for Various Years

Comparison of Timber Harvesting and Silviculture Employment Coefficients by Coastal Region - MOFR TSR-1 & TSR-2 and 2005/2006 Survey Results				
PY per 1,000 m3 of Timber Harvested	North Coast	Central Coast	HG/QCI	Sea-to-Sky Region
MOFR Coefficients - All BC Residents:				
MOFR Timber Supply Review (TSR-1; 1994/1995)	0.620	0.550	0.500	0.520
MOFR Timber Supply Review (TSR-2; 1999-2001)	0.350	0.495	0.510	0.590
MOFR TSA Coefficients - Local Residents:				
MOFR Timber Supply Review (TSR-2; 1999-2001)	0.120	0.150	0.250	0.420
2005/2006 Coefficients by Employee Residence (from Survey Results)				
HG/QCI	-	-	0.337	-
North Coast	0.206	0.011	0.025	-
Terrace/Kitimat/Northwest	0.206	0.007	-	-
Central Coast	0.008	0.025	-	-
Sea-to-Sky Region	-	-	-	0.467
Vancouver Island	0.261	0.385	0.104	0.048
Lower Mainland	0.051	0.050	0.052	0.058
Other BC	0.007	0.015	0.039	-
Total	0.738	0.493	0.557	0.573

Notes:

1. The employment coefficients highlighted in bold are comparable to the MOFR TSA (local resident) harvesting coefficient.
2. The Central Coast data for TSR-1 and TSR-2 represent an arithmetic average of the Kingcome TSA (mainland and Vancouver Island portions) and Mid-Coast TSA.
3. The 2005/06 survey results by employee residence for the Central Coast are not comparable to the Central Coast MOFR TSA coefficients, as the latter would also include employees who reside in the Vancouver Island portion of the Kingcome TSA.
4. The 2005/2006 survey results are based not only on data from the TSAs, but also from TFLs and TLs.
5. The HG/QCI data by employee residence are based on the total HG/QCI coefficients reported for local residents and non-residents as well the breakdown of full-time and part-time workers by employee residence.

Sources:

- TSR-1 and TSR-2 Coefficients: MOFR Economics and Trade Branch, available from web site: http://www.for.gov.bc.ca/HET/tsr_sea/index.htm
- Pierce Lefebvre Consulting, *Haida Gwaii/Queen Charlotte Islands – Timber Harvest & Processing Employment Survey*, June 2005, available from: http://ilmbwww.gov.bc.ca/ilmb/lup/lrmp/coast/qci/docs/SEA_HG-QCI_employment_June20_05.pdf
- Pierce Lefebvre Consulting, *Sea-to-Sky Timber Harvest & Processing Employment Survey*, Final Report, August 8th, 2006.

6 Direct Employment Associated with Total Area Harvest

The following table provides an estimate of the direct employment associated with the North Coast and Central Coast timber harvest.

Table 6 *Estimated Direct Employment Associated with NC and CC Harvest*

Estimated Direct Employment (PY) (Extrapolated to Total Industry Based on Assumed Harvest)	3 Year Average			
	North Coast		Central Coast	
	PY	% of Total	PY	% of Total
Direct Harvesting Employment (3 year average)				
North Coast Residents	90	27.9%	29	2.3%
Terrace/ Other Northwest	90	27.9%	19	1.4%
Central Coast	3	1.0%	66	5.1%
North Island	13	3.9%	151	11.7%
Campbell River and Other Mid-Island	92	28.5%	667	51.5%
Southern Vancouver Island	9	2.9%	193	14.9%
Lower Mainland	22	6.9%	131	10.1%
Other	3	1.0%	39	3.0%
Total Harvesting and Silviculture	323	100.0%	1,296	100.0%
BC Primary Processing (Mainly Southern BC):				
Wood Processing	149		1,119	
Pulp & Paper Processing	61		459	
Total Primary Processing	210		1,578	
Total B.C. Direct Employment	533		2,875	

Assumptions:	North Coast	Central Coast
Estimated Total Timber Harvest (m3)	437,695	2,627,880
Exports % (based on survey)	20.7%	0.6%
Timber Volume Processed in B.C. (m3)	347,084	2,612,346
BC Employment Coefficients (PY per 000 m3):	North Coast	Total CC
Harvesting and Silviculture (3 year average from survey)	0.738	0.493
BC Primary Processing (Mainly Southern BC)		
Wood Processing	0.428	0.428
Pulp and Paper	0.176	0.176

Notes:

1. This table provides estimates of direct harvesting employment based on assumed levels of timber harvest and employment coefficients per m3 of timber harvest; the presentation of these estimates implies a degree of precision that does not exist but the represented precision is retained to maintain the integrity of the data and methodology.
2. The data assume a job is full-time (one PY) if the work year consistently lasts 8 to 12 months per year, or at least 180 days per year. Part-time employment data were collected and converted to PY of employment using 180 days per PY.
3. Excludes secondary paper manufacturing and value added wood processing sector; Source: based on Pierce Lefebvre Consulting et al., *Analysis of Woodflow in the Coast Forest Region, 2003*, and other data (see below for more detail).

The industry employment data presented in Table 6 represent an estimate of total industry employment based on the survey employment data, and the 3-year average harvest using MOFR Harvest Billing System data by scale date for 2003 and 2004, and by billing date for 2005 (the 2005 MOFR data by scale date were not available at the time of writing this report). As noted earlier in the report, the 2005 MOFR Harvest Billing System data likely cover the timber harvest scaled in the latter

part of 2004 but exclude timber scaled in the latter part of 2005.

The estimates of direct employment take into account the percentage of the harvest that is directly exported each year based on the survey results.

The estimated direct employment data also include an estimate of processing employment based on the processing coefficient derived from a 2003 study of woodflows for the Coast Forest Region⁵ and taking into account some of the major mills that have closed since that study was published. The total manufacturing employment was adjusted by excluding the employment associated with mills that are now permanently closed while holding the assumed timber supply constant. This may overstate the drop in employment as these estimates do not take into account that some of the remaining mills may have experienced increased employment to reflect the increased production.

The following table summarizes 1996 and 2003 processing employment coefficient data, as well as the revised estimates for 2006.

Table 7 Direct Employment Coefficients for the Coast Forest Region

Direct Employment Coefficients for the Coast Forest Region	Number of Person Years (PY) per 1,000 m ³				PY per 1,000 m ³ of Timber Harvested - Revised for Mill Closures
	of Timber Harvested		of Fibre Consumed		
	1996	2003	1996	2003	2006
Harvesting and Silviculture	0.520	0.520			
Primary Processing:					
Sawmills	0.365	0.346	0.535	0.534	0.314
Shake & Shingle	0.054	0.041	1.096	0.863	0.041
Plywood and Veneer		0.046		0.803	0.046
Other	<u>0.034</u>	<u>0.028</u>	0.209	0.112	<u>0.028</u>
Sub-Total - Wood Products Processing	0.453	0.461			0.428
Primary Pulp and Paper	<u>0.240</u>	<u>0.206</u>	0.465	0.394	<u>0.176</u>
Sub-Total - Primary Processing	0.694	0.666			0.604
Secondary Pulp and Paper	0.063	0.067			
Total (Harvesting, Silviculture & Processing)	1.277	1.254			

Source: 1996 and 2003 data are from Pierce Lefebvre Consulting et al., *Analysis of Woodflow in the Coast Forest Region*, 2003; 2006 data are from 2003 coefficients updated to take into account the major mills that have been closed since 2003.

The major mills that have been closed since Spring 2003 that are excluded in the revised coefficients are as follows:

⁵ Source: Pierce Lefebvre Consulting et al., *Analysis of Woodflow in the Coast Forest Region*, 2003

Table 8 Recent Mill Closures on BC Coast

List of Mills		2003 Employment	2006 Employment	Change
Pulp and Paper Manufacturing:				
Western Pulp Ltd. Partnership	Port Alice	465	265	-200
Western Pulp Ltd. Partnership	Woodfibre	330	closed	-330
Total Pulp and Paper				-530
Wood Products Manufacturing:				
Western Forest Products	Silvertree	150	closed	-150
International Forest Products	Field Sawmill	100	closed	-100
International Forest Products	Squamish	145	closed	-145
Cascadia Forest Products	Island Phoenix Division	180	closed	-180
Total Wood Products				-575

Source: Various publications including: BC MOFR, *Major Primary Timber Processing Facilities in BC 2004*, July 2005, from: <http://www.for.gov.bc.ca/ftp/HET/external!/publish/Web/Mill List/2004 Mill List.pdf>.

7 Full-Time and Part-Time Employment

The survey of licensees requested data on the number of full-time jobs, the number of part-time jobs and the number of days per part-time job by category of timber harvesting employment. The following paragraphs explain how the survey differentiates between full-time and part-time employment, and discusses some of the factors that influence the number of jobs reported as part-time or full-time.

- The survey defines a full-time job (also referred to as Person Year (PY) of employment) as any job where employees worked more than 180 days in a year.
- Where full-time contractor employees did not work 180 days, these were reported by licensees as part-time employment, and the number of days of part-time employment were converted into PY using 180 days per year.
- Full-time employees who also work on licenses on Vancouver Island and other regions outside the NC and CC were reported as part-time employees if they worked less than 180 days per year on the NC and CC.
- Special care was taken so that part-time workers who operate in different sub-regions and management units for the same company were not counted more than once. Part-time workers who split their time between two licensees, however, could be counted two or more times. This may be particularly relevant for silviculture workers where part-time work seems to be the most prevalent.
- While some logging contractors such as “stump to dump” contractors were included in the survey, smaller contractors such as silviculture contractors were not. As a result, silviculture jobs were typically estimated by the licensees, usually in terms of days of part-time employment.
- “Lurch logging”, the practice of hiring contractors for the duration of a specific logging operation or

contract rather than having full-time jobs with major forest licensees, is increasingly common in coastal BC and is being reflected in the survey results. Factors which are likely to continue the trend towards “lurch logging” include the fragmentation of the timber harvesting industry, the increasing influence of market logging, the allocation of BC Timber Sale licenses to First Nations and other communities that do not have a full-time workforce, and the practice of harvesting a BC Timber Sale over a short period of time, rather than spreading the harvesting activity evenly over the duration of the license period. There may also be broader factors at play, including technological changes resulting in increased labour specialization, for example heli-logging, and societal changes influencing where loggers chose to reside.

- All the survey participants except one reported that their timber harvesting crews operate between 8 and 12 months per year throughout coastal BC. Some licensees reported that the work typically lasted 3 or 4 months of the year, but could take place anytime during the calendar year.

Many of the licensees emphasized that normally their workforce is considered full-time, but that 2003 through 2005 were particularly difficult as a result of poor markets and uncertainty regarding the landbase. For these licensees, particularly for 2003, very few of the workers worked enough days to qualify as "full-time" employees using the 180 day definition of a full-time job (180 days is approximately 9 months of work). This resulted in a high ratio of part-time jobs relative to the number of full-time jobs.

The following table indicates the number of jobs associated with the PY of employment as reported in the survey. As shown on the table, on average over the three-year period, there are an estimated 1.5 times more jobs than there are PY of employment. The table shows that on average every year, the NC and CC harvest generates some 1,604 PY of direct harvesting employment in BC, but the number of full-time and part-time jobs may be as much as 1.5 times greater than that, at approximately 2,400 jobs.

Table 9 Estimated Number of Jobs per PY of Direct Timber Harvesting Employment

North Coast/ Central Coast - Full-Time and Part-Time Jobs Per PY of Direct Employment	3 Year Average				
	North Coast	Mid-Coast	Southern Central Coast	Total CC (Mid-Coast & South Central)	Combined NC/CC
Survey Results:					
Number of Full-Time Jobs	199	213	575	788	988
Number of Part-Time Jobs	<u>28</u>	<u>436</u>	<u>395</u>	<u>831</u>	<u>860</u>
Total Timber Harvesting Jobs	228	649	970	1,620	1,847
PY of Direct Timber Harvesting Employment	212	319	698	1,017	1,229
Jobs/PY of Direct Harvesting Employment	1.073	2.036	1.390	1.592	1.503
Extrapolated Data to Total Industry:					
PY of Direct Timber Harvesting Employment	323			1,296	1,604
Total Full-Time & Part-Time Jobs	347			2,064	2,410

Notes to Table 9:

1. As noted in the text of the report, there are various factors that influence the number of jobs reported as part-time or full-time. As a result, the data by sub-region are not as reliable as the combined totals, as each sub-region has fewer survey respondents.
2. The industry estimates of full-time and part-time jobs are based on the survey results for the NC and CC, and the total harvest for each of those two regions. Deriving estimates for the Mid-Coast and Southern CC using the harvest levels and survey employment coefficients for those two sub-regions and combining them to form the CC total would yield slightly different CC estimates than are shown on Table 9, as these sub-regional estimates would be weighted by the proportion of the total regional harvest in each of sub-region, rather than the harvest proportions represented by the survey participants.

The following appendices provide data for the following sub-regions:

1. North Coast: includes the North Coast Timber Supply Area (TSA);
2. Central Coast: includes the Mid-Coast and the South Central Coast;
3. Mid-Coast: includes the Mid-Coast TSA, TFL 25-Block 5 and TFL 39- Block 7; and
4. South Central Coast: includes the mainland portions of the Kingcome and Strathcona TSAs, and the TLs and TFLs that are within or adjacent to those TSA boundaries.

Appendix 5 provides a list of selected references.

APPENDIX 1 NORTH COAST SURVEY RESULTS

This Appendix provides data for the North Coast sub-region.

North Coast TSA Licenses and Timber Harvest								3 Year Average Harvest	3 Year Average Harvest as a % of AAC
Name of License Holder	Detail/ Location	Comment on AAC and Harvest Levels	Timber Harvest (m3)			2005 AAC	Non-AAC Lump Sum Volume		
			2003	2004	2005				
TSA - North Coast 21									
Triumph Timber Ltd.	A16820	All conventional				146,824			
Thomson Industries Ltd.	A16837	All conventional - Not active since 2002				29,385			
Boyle & Dean Logging Ltd.	A16838	All conventional				19,295			
International Forest products	A16841	All conventional - AAC was 51,220 m3, but license was part of take back in 2005				51,220			
Lax Kw'alaams Tribal Resources Ltd.	A60585	All conventional - non-replaceable					22,000		
Sub-Total TSA - Forest Licenses		Harvest represents scaled data as reported in the survey	216,232	451,272	194,366	246,724	22,000	287,290	116%
TREE FARM LICENSES (TFLs):									
Western Forest Products	TFL 25 – Block 5	BC MOFR reports no harvest volume from TFL 25 - Block 5 in the North Coast TSA for all 3 years; the WFP harvest from TFL 25 Block 5 is included as part of the Central Coast region							
Other Forest Licenses Replaceable		Per MOFR apportionment, Forest Licenses Replaceable add to 393,626 m3, or 146,902 m3 greater than the Commitments of 246,724 m3				146,902			
BC Timber Sales and Other Adjustments		BC Timber Sales timber apportionment				150,126			

North Coast TSA Licenses and Timber Harvest								3 Year Average Harvest	3 Year Average Harvest as a % of AAC	
Name of License Holder	Detail/ Location	Comment on AAC and Harvest Levels	Timber Harvest (m3)				2005 AAC			Non-AAC Lump Sum Volume
			2003	2004	2005					
Community Forest Agreement		North Coast TSA includes a volume of 2,872 m3 for Forest Service Reserve				2,872				
Sub-Total		Volume represents the difference between the total harvest reported by MOFR and the harvest reported by the licensees in this survey	55,616	290,712	104,889	299,900		150,406	50%	
TOTAL HARVEST		MOFR volume data by scale date for 2003 and 2004 and by billing date for 2005	271,848	741,984	299,254	546,624	included in apportionment	437,695	80%	
Survey Coverage Based on Harvest			79.5%	60.8%	65.0%	45.1%		65.6%		

Note:

1. The AAC in the table is from the MOFR apportionment in effect in December 2005; some changes to the North Coast TSA apportionment in 2006 include a 30,000 m3 Community Forest Agreement, 3,000 m3 in woodlot licenses, 190,985 m3 in non-replaceable licenses and 110,043 m3 in BC Timber Sales. In 2006, the AAC for committed Forest Licenses remained at 246,724 m3 but the overall AAC increased to 573,624 m3.

Source: Total TSA harvest for 2003 and 2004 is by scale date while 2005 is the billed volume by billing date for 2005; data are from the MOFR Harvest Billing System (provided by Glenn Farenholtz of BC MAL , January 23rd, 2006). All other harvest data are from the Pierce Lefebvre Consulting survey of licensees which was conducted for this project.

The following tables summarize the survey results and data for the North Coast TSA.

North Coast Survey Results - Timber Exports and Destination of Timber Harvest from the NC	NC 2003	NC 2004	NC 2005	NC 3 Year Average
Total Export Volumes (m3)	38,000	75,000	53,000	55,333
Total Reported Harvested Volumes (m3)	216,232	451,272	194,366	287,290
Percent of Total Volumes Harvested:				
Export Volume	17.3%	17.0%	26.7%	20.7%
BC Interior	0.0%	0.0%	0.0%	0.0%
Central Coast	0.0%	0.0%	0.0%	0.0%
North Coast/ Terrace	2.6%	1.3%	2.9%	1.9%
Sea-to-Sky Region	0.0%	0.0%	0.0%	0.0%
North Vancouver Island	0.0%	0.0%	0.0%	0.0%
Campbell River & Mid-Island	0.0%	0.0%	0.0%	0.0%
Nanaimo & South Island	0.0%	0.0%	0.0%	0.0%
Lower Mainland	56.0%	44.6%	48.2%	45.6%
Vancouver Log Market	24.1%	37.1%	22.2%	31.7%
TOTAL VOLUME	100.0%	100.0%	100.0%	100.0%

North Coast Survey Results - Harvesting Employment - Person Years (PY)	NC 2003	NC 2004	NC 2005
Harvesting/ Falling	127	197	89
Planning & Administration	25	37	21
Log Hauling / Trucking	0	3	1
Barging / Towing	10	18	8
Road Building	15	38	9
Silviculture	12	18	9
Other	0	0	0
Total	189	311	137

Note: Most licensees and their contractors included all log hauling and trucking as part of harvesting; harvesting also includes camp operations and heli-yrading.

North Coast Survey Results - Full-Time & Part-Time Harvesting Employment	Full-Time Jobs			% Residing in NC
	NC 2003	NC 2004	NC 2005	
Harvesting/ Falling	127	177	79	10%
Planning & Administration	25	37	21	7%
Log Hauling / Trucking	0	0	0	0%
Barging / Towing	10	18	8	0%
Road Building	15	38	9	0%
Silviculture	10	16	8	0%
Other	0	0	0	0%
Total	187	286	125	7%

Note: Full-time employees who did not work a minimum 180 days per year are counted as part-time; also, some companies whose employees also work outside the North Coast/ Central Coast region are counted as part-time workers.

North Coast Survey Results - Part-Time Employment	Part-Time Jobs			% Residing in NC
	NC 2003	NC 2004	NC 2005	
Harvesting/ Falling	0	30	15	15%
Planning & Administration	0	0	0	0%
Log Hauling / Trucking	0	6	3	10%
Barging / Towing	0	4	2	100%
Road Building	0	0	0	0%
Silviculture	10	10	5	15%
Other	0	0	0	0%
Total	10	50	25	20%

North Coast Survey Results - % of Employees by Residence Location	NC 2003	NC 2004	NC 2005	NC 3 Year Average
Central Coast:				
Hagensborg	0%	0%	0%	0%
Bella Coola	1%	0%	0%	0%
Bella Bella	0%	0%	0%	0%
Kingcome River	1%	0%	0%	0%
Klemtu	0%	0%	0%	0%
Other in Central Coast	<u>0%</u>	<u>0%</u>	<u>0%</u>	<u>0%</u>
Sub-Total Central Coast	2%	1%	0%	1%
North Coast:				
Prince Rupert	14%	11%	16%	13%
Port Simpson	7%	5%	8%	7%
Port Edward	0%	0%	0%	0%
Kitkatla	2%	2%	3%	2%
Hartley Bay	7%	4%	7%	6%
Other in North Coast	<u>1%</u>	<u>1%</u>	<u>0%</u>	<u>1%</u>
Sub-Total North Coast	32%	22%	35%	28%
Terrace	18%	30%	35%	28%
Kitimat	0%	0%	0%	0%
Other Northwest BC	<u>0%</u>	<u>0%</u>	<u>0%</u>	<u>0%</u>
Total Northwest BC	18%	30%	35%	28%
Port Hardy	1%	2%	1%	1%
Port McNeill	1%	1%	1%	1%
Other North Van Island	1%	2%	1%	1%
Campbell River	18%	19%	10%	16%
Other Mid-Van Island	14%	13%	7%	12%
Nanaimo & Duncan	2%	2%	2%	2%
Southern V.I.	1%	1%	1%	1%
Total Vancouver Island:	39%	39%	24%	35%

North Coast Survey Results - % of Employees by Residence Location	NC 2003	NC 2004	NC 2005	NC 3 Year Average
Sea-To-Sky Region:	0%	0%	0%	0%
Squamish	0%	0%	0%	0%
Whistler	0%	0%	0%	0%
Pemberton	0%	0%	0%	0%
Lions Bay	0%	0%	0%	0%
Other in Sea-to-Sky	0%	0%	0%	0%
Sub-Total Sea-to-Sky	0%	0%	0%	0%
Lower Mainland	8%	7%	5%	7%
Other (please specify):	1%	1%	1%	1%
Total	100%	100%	100%	100%

Note: The questionnaire requested data by community and by sub-region, but for some regions such as the Central Coast and the Terrace/Kitimat sub-region, most survey participants reported only a regional total.

North Coast Survey Results - Person Years (PY) of Direct Harvesting Related Employment per 1,000 m3 of Timber Harvested	NC 2003	NC 2004	NC 2005	NC 3 Year Average
Harvesting/ Falling	0.587	0.437	0.460	0.480
Planning & Administration	0.116	0.082	0.108	0.096
Log Hauling / Trucking	0.000	0.006	0.007	0.005
Barging / Towing	0.046	0.041	0.040	0.042
Road Building	0.069	0.084	0.044	0.071
Silviculture	0.054	0.039	0.045	0.044
Other	0.000	0.000	0.000	0.000
Total	0.873	0.689	0.705	0.738
Direct Employment by Employee Residence:				
Central Coast	0.014	0.007	0.003	0.008
North Coast	0.280	0.154	0.246	0.206
Terrace/Kitimat/ Other Northwest	0.160	0.208	0.245	0.206
Vancouver Island	0.336	0.266	0.168	0.261
Sea-to-Sky	0.000	0.000	0.000	0.000
Lower Mainland	0.072	0.049	0.034	0.051
Other	0.011	0.005	0.009	0.007
Total	0.873	0.689	0.705	0.738

Note: Most licensees and their contractors included all log hauling and trucking as part of harvesting; harvesting also includes camp operations and heli-yrading.

Survey Coverage	NC 2003	NC 2004	NC 2005	NC 3 Year Average
Total Harvest Reported by MOFR	271,848	741,984	299,254	437,695
Reported Volume	216,232	451,272	194,366	287,290
Survey Coverage	80%	61%	65%	66%

APPENDIX 2 CENTRAL COAST SURVEY RESULTS

North Island and Central Coast Forest District								3 Year Average Harvest	3 Year Average Harvest as a % of AAC
Name of License Holder - Mid-Coast Sub-Region	Detail/ Location	Comment on AAC and Harvest Levels	Timber Harvest (m3)			2005 AAC/ Commitments	Non-AAC Lump Sum Volume		
			2003	2004	2005				
TSA - Mid Coast 19									
Western Forest Products (WFP Ltd., WFP Western Lumber Ltd.)	A16845	All conventional; AAC of 265,762 m3 in 2005, 223,587 m3 in 2004 and 176,334 m3 in 2003	3,672	439	0	265,762		1,370	1%
	A16847	All conventional; AAC of 108,086 m3 in 2005, 193,500 m3 in 2004 and 193,734 m3 in 2003; in 2006, the AAC for this license has dropped to 38,436 m3	49,126	106,370	138,538	108,086		98,011	91%
International Forest Products	A16850	All conventional	203,467	239,317	340,202	336,578		260,995	78%
S.W.C. Holdings Ltd.	A16848	All conventional	0	8,292	39,814	19,463		16,035	82%
Mill & Timber Products Ltd.	A16868	All conventional	0	0	0	2,552		0	0%
Heiltsuk Coastal Forest Products	A62710	All conventional - non-replaceable	0	0	0	20,000		5,000	25%
	A67048	All conventional - non-replaceable	0	0	39,657		25,000	13,219	
Kvamua Enterprises Limited	A65223	All conventional	0	120,000	0	14,286	47,142	40,000	
Sub-Total TSA - Forest Licenses		Harvest represents scaled data as was reported in the survey; AAC represents commitments which may include some BC Timber Sales and other volumes	256,265	474,418	558,211	766,727	72,142	429,631	56%
Kitasoo Forest Company/ Western Forest Products	TSL A59446	Kitasoo Forest Company license within Western Forest Products TFL 25 - Block 5	13,336	5,932	6,653			8,640	
BC Timber Sales and Other		Other - equal to difference between survey results and total reported by MOFR	50,943	169,971	320,951	28,273		142,535	
Sub-Total Mid-Coast TSA - Forest Licenses		Total Mid-Coast Harvest as reported by BC MOFR Harvest Billing System; Total AAC represents apportionment in effect in December 2005 and accounts for Part 13 reduction of 203,000 m3	320,544	650,321	885,815	795,000	included in apportionment	618,893	78%
Survey Coverage for Mid-Coast TSA			84.1%	73.9%	63.8%			70.8%	

Name of License Holder - Mainland Portion of Kingcome	Detail/ Location	Comment on AAC and Harvest Levels	Timber Harvest (m3)			2005 AAC/ Commitments	Non-AAC Lump Sum Volume	3 Year Average Harvest	3 Year Average Harvest as a % of AAC
			2003	2004	2005				
TSA - Kingcome 33									
International Forest Products	A19238	All conventional, per licensee, 85% on mainland, 15% on Vancouver Island; total AAC is 300,000 m3	260,066	473,866	590,959	255,000		441,630	173%
	A77806	All conventional, per licensee, 85% on mainland, 15% on Vancouver Island; total AAC is 200,000 m3	0	0	136,970	170,000		45,657	27%
	A77807	All conventional, per licensee, 85% on mainland, 15% on Vancouver Island; total AAC is 170,318 m3	0	0	105,952	144,770		35,317	24%
Mill & Timber Products Ltd.	A19242	All conventional; per licensee, 100% mainland; in 2006, this license has been combined with the Mid-Coast A16868 and the AAC is 52,010 m3	17,810	28,416	27,739	49,458		24,655	50%
	A32687	Non-replaceable; per licensee, 100% mainland	80,732	114,983	31,662	79,544		75,792	95%
Cascadia Forest Products	A19244	All conventional; per licensee, 100% mainland; in 2006, the AAC for this license has dropped to 25,347 m3	53,336	62,126	36,242	47,114		50,568	107%
Gwa'sala-'Nakwaxda'xw Timber	A55510	Non-replaceable; 100% on Mainland; as reported by MOF					33,795		
		As reported in survey, licensee has 128,761 m3 in non-AAC volume; this is 94,966 m3 more than what is reported by MOFR (33,795 m3)	0	10,425	37,222		94,966	15,882	

Name of License Holder - Mainland Portion of Kingcome	Detail/ Location	Comment on AAC and Harvest Levels	Timber Harvest (m3)			2005 AAC/ Commitments	Non-AAC Lump Sum Volume	3 Year Average Harvest	3 Year Average Harvest as a % of AAC
			2003	2004	2005				
Weyerhaeuser	A49542	Deciduous non replaceable, per licensee, 100% Mainland;	8,559	16,490	1,977	14,204		9,009	63%
Scott Paper	A34862	Deciduous non replaceable	0	0	16,975	5,000		5,658	113%
Sub-Total - TSA Forest Licenses (Survey Only)	Survey Participants	As reported by licensees in survey	420,503	706,306	985,698	765,090	128,761	704,169	92%
Western Forest Products Timber Licenses	Additional Survey Data	TFL 25 has a number of Timber Licenses inside its boundaries (TL 10011, 10099, 10168, 10188, 10244, etc.); Licensee reports harvest for Timber Licenses in Block 2	0	11,692	0			3,897	
Other	Additional Survey Data	Harvest reported by survey participants not included above	0	0	30,000	0		10,000	
442578 BC Ltd	A20511	Replaceable				8,664			
	A20511	Non-replaceable; in 2006, this license is no longer in effect				8,664			
Total Commitments on Mainland	Ministry of Forests and Range Data	Total Commitments from Kingcome TSA that are currently from operations on the Mainland (accounts for 81.2% of all Commitments reported by MOFR)				782,418	included in apportionment		
BC Timber Sales and other		Other - equal to difference between survey results and total reported by MOF	342,774	345,603	408,483	260,714		365,620	
Total Kingcome TSA	Ministry of Forests and Range Data	Mainland portion of Kingcome TSA, estimated at 81.2% of total harvest as reported by MOFR for 2003, 2004 and 2005	763,277	1,063,601	1,424,181	1,043,132	included in apportionment	1,083,686	104%
Survey Coverage for Kingcome TSA	% of Total Harvest	% of Survey Coverage for Commitments includes the non-AAC Volume of 128,761 m3 and the 764,100 m3	55%	68%	71%	86%		66%	

Name of License Holder	Detail/ Location	Comment on AAC and Harvest Levels	Timber Harvest (m3)			2005 AAC/ Commitments	Non-AAC Lump Sum Volume	3 Year Average Harvest	3 Year Average Harvest as a % of AAC
			2003	2004	2005				
TREE FARM LICENSES (TFLs) in North Island Central Coast Forest District:									
Western Forest Products	TFL 25 - Block 2	Licensee reports 2005 AAC/Average Annual Volume from Block 2 at 92,000 m3	34,092	102,062	83,372	92,000		73,175	80%
	TFL 25 - Blocks 5	Licensee reports 2005 AAC/Average Annual Volume from Block 5 at 222,930 m3	184	14,449	31,067	222,930		15,233	7%
Cascadia Forest Products (now Western Forest Products)	TFL 39 - Block 3	Licensee reports 3 year average annual volume of 105,601 m3 from Block 3 (100% on Central Coast)	99,925	153,660	63,219	105,601		105,601	100%
	TFL 39 - Block 5	Licensee reports 3 year average annual volume of 53,992 m3 from Block 5.	28,204	83,155	50,616	95,000		53,992	100%
	TFL 39 - Block 7	Licensee reports AAC/Annual Average Volume at 72,702 m3	118,288	90,458	32,414	72,702		80,387	111%
Scott Paper	TFL 43	Licensee reports AAC of 8,314 m3	11,524	0	38,213	8,314		16,579	199%
International Forest Products	TFL 45	Harvest as reported by licensee; MOFR reports harvest of 17,362 m3 in 2003, 82,925 in 2004 and 197,492 m3 in 2005	99,202	137,551	158,895	187,000		131,883	71%
TimberWest Forest Corp.	TFL 47 - blocks on Central Coast mainland	TimberWest estimated the AAC/Annual Average Volume for TFL 47 for the blocks on the Central Coast at 431,793 m3	191,037	429,304	614,098	431,793		411,480	95%
Total TFL Volume	Mainland portion of North Island and Central Coast Forest District	Likely excludes some BC Timber Sales licenses/ timber harvest	582,456	1,010,639	1,071,894	1,215,340		888,330	73%

Total Mainland Harvest - North Island & Central Coast Forest District									
Survey Participants			1,272,560	2,208,987	2,652,456	2,747,157		2,044,668	74%
Other		per Interfor, would include approximately between 50,000 m3 and 100,000 m3 per year in Timber Licenses in the mainland portions of the Kingcome & Strathcona TSAs	393,717	515,574	729,434	306,315		546,242	178%
All Licenses			1,666,276	2,724,561	3,381,890	3,053,472		2,590,909	85%
Survey Coverage for Mainland of North Island Central Coast Forest District (NI/CC FD)			76%	81%	78%	90%		79%	
Mainland Portion of District of Campbell River (DCR)									
Name of License Holder	Detail/ Location	Comment on AAC and Harvest Levels	Timber Harvest (m3) on Mainland			AAC/ Average Annual Volume		3 Year Average Harvest	3 Year Average Harvest
			2003	2004	2005				
TSA - Strathcona 37									
International Forest Products	A19232	All conventional - licensee reports that approximately 10% is on the Mainland (total AAC is 242,979 m3)	25,037	11,004	24,574	20,205		20,205	100%
TFL Forest Ltd. (TimberWest)	A20913	All conventional - License can be harvested on Mainland or Vancouver Island, this is only the mainland portion; AAC is 25,376 m3	46,349	3,949	0	25,376		16,766	66%
Total Strathcona TSA		This excludes licenses that may be partly on the CC but where the licensees for those years reported no harvest. Also, excludes some BC Timber Sales.	71,386	14,953	24,574	45,581		36,971	81%
Total Mainland Harvest - Central Coast (Mainland Portion of NI/CC FD and DCR)									
Survey Participants			1,343,946	2,223,940	2,677,030	2,792,738		2,081,639	75%
Other			393,717	515,574	729,434	306,315		546,242	178%
All Licenses (see note 5)		Includes Mid-Coast TSA, Kingcome TSA, Total TFL Volumes and Strathcona TSA	1,737,662	2,739,513	3,406,465	3,099,053		2,627,880	85%
Survey Coverage for Mainland of North Island Central Coast Forest District (NI/CC FD)			77%	81%	79%	90%		79%	

Notes/ Assumptions:

1. The Kitasoo Forest Company license TSL A59446 within TFL 25 is also included as part of the TFL 25 - Block 5 volume on the Central Coast.
2. In the Kingcome TSA, there are various licenses that are entirely on Vancouver Island. These include: Richmond Plywood (A19243), Lamarre Lake Logging (A59539), Ida Lake Salvage Ltd. (A60876), Probyn Log Ltd. (A20510), etc.).
3. The mainland portion of the total harvest for the Kingcome TSA is estimated at 81.2% as follows:

Estimate of Harvest on Mainland Portion of Kingcome TSA	2003	2004	2005	2005 AAC/ Commit- ments
Total Commitments for Kingcome TSA (as reported by MOFR)				963,085
Total Commitments for Mainland Portion of Kingcome TSA (as reported by survey participants)				782,418
% of Kingcome TSA on Mainland Portion				81.2%
Harvest Reported for Kingcome TSA by MOFR	939,524	1,309,195	1,753,037	1,284,000
Harvest in Mainland Portion of Kingcome TSA (@ 81.2% based on survey data)	763,277	1,063,601	1,424,181	1,043,132

4. Harvest data reported from the licensees in the survey do not always match closely the harvest reported by the Ministry of Forests and Range. For example, MOFR reports a much greater harvest for TFL 39 in the North Island/Central Coast Forest District than what is reported above, but TFL 39 has other blocks on Vancouver Island.
5. The AAC for the mainland portion of the Strathcona TSA and for the TFLs likely exclude most of the BC Timber Sales harvest in those areas.

Source: Total TSA harvest for 2003 and 2004 is by scale date while 2005 is the billed volume by billing date for 2005; data are from the Ministry of Forests and Range Harvest Billing System (provided by Glenn Farenholtz of BC MAL , January 23rd, 2006). All other harvest data are from the Pierce Lefebvre Consulting survey of licensees which was conducted for this project.

The following tables summarize the survey results and data for the Central Coast (CC). The CC includes the Mid-Coast TSA, the mainland portion of the Kingcome and Strathcona TSAs and the TFLs and TLs that are within or adjacent to those TSA boundaries. Two small licensees did not provide a complete survey and their data are excluded from the detailed survey results. The next two appendices provide a breakdown of the CC into two sub-regions namely the Mid-Coast sub-region and the South Central Coast.

Central Coast Survey Results - Timber Exports and Destination of Timber Harvest from the CC	CC 2003	CC 2004	CC 2005	CC 3 Year Average
Total Export Volumes (m3)	18,359	311	20,000	12,890
Total Reported Harvested Volumes (m3)	1,343,946	2,201,823	2,639,808	2,061,859
Percent of Total Volumes Harvested:				
Export Volume	1.1%	0.0%	0.8%	0.6%
BC Interior	0.0%	0.0%	0.0%	0.0%
Central Coast	0.0%	0.0%	0.0%	0.0%
North Coast/ Terrace	0.0%	0.0%	0.0%	0.0%
Sea-to-Sky Region	0.0%	0.0%	0.0%	0.0%
North Vancouver Island	0.0%	0.0%	0.0%	0.0%
Campbell River & Mid-Island	9.7%	7.5%	6.0%	7.1%
Nanaimo & South Island	12.5%	10.3%	8.1%	9.5%
Lower Mainland	27.0%	35.7%	34.5%	35.2%
Vancouver Log Market	49.7%	46.4%	50.6%	47.5%
TOTAL VOLUME	100.0%	100.0%	100.0%	100.0%

Central Coast Survey Results - Harvesting Employment - Person Years (PY)	CC 2003	CC 2004	CC 2005
Harvesting/ Falling	549	625	772
Planning & Administration	123	119	135
Log Hauling / Trucking	17	25	20
Barging / Towing	33	38	49
Road Building	78	96	116
Silviculture	67	81	102
Other	1	5	1
Total	868	988	1,195

Note: Most licensees and their contractors included all log hauling and trucking as part of harvesting; harvesting also includes camp operations and heli-yrading.

Central Coast Survey Results - Full-Time & Part-Time Harvesting Employment	Full-Time Jobs			% Residing in CC
	CC 2003	CC 2004	CC 2005	
Harvesting/ Falling	432	465	679	4.2%
Planning & Administration	88	89	113	0.0%
Log Hauling / Trucking	9	8	10	0.0%
Barging / Towing	26	29	44	0.0%
Road Building	63	72	94	0.6%
Silviculture	41	38	52	1.5%
Other	4	3	5	8.3%
Total	664	705	996	3%

Central Coast Survey Results - Part-Time Employment	Part-Time Jobs			% Residing in CC
	CC 2003	CC 2004	CC 2005	
Harvesting/ Falling	341	389	256	2%
Planning & Administration	93	99	107	1%
Log Hauling / Trucking	23	35	32	4%
Barging / Towing	51	45	53	5%
Road Building	25	35	72	6%
Silviculture	197	265	334	11%
Other	3	35	3	0%
Total	733	903	857	5%

Note: Full-time employees who did not work a minimum 180 days per year are counted as part-time; also, some companies whose employees also work outside the North Coast/ Central Coast region are counted as part-time workers.

Central Coast Survey Results - % of Employees by Residence Location	CC 2003	CC 2004	CC 2005	CC 3 Year Average
Central Coast:				
Hagensborg	0%	0%	0%	0%
Bella Coola	1%	1%	1%	1%
Bella Bella	0%	0%	0%	0%
Kingcome River	0%	0%	1%	0%
Klemtu	2%	1%	1%	1%
Other in Central Coast	<u>2%</u>	<u>2%</u>	<u>2%</u>	<u>2%</u>
Sub-Total Central Coast	6%	5%	5%	5%
North Coast:				
Prince Rupert	1%	1%	1%	1%
Port Simpson	0%	0%	0%	0%
Port Edward	0%	0%	0%	0%
Kitkatla	0%	0%	0%	0%
Hartley Bay	0%	0%	0%	0%
Other in North Coast	<u>1%</u>	<u>1%</u>	<u>1%</u>	<u>1%</u>
Sub-Total North Coast	2%	2%	3%	2%
Terrace	1%	1%	2%	1%
Kitimat	0%	0%	0%	0%
Other Northwest BC	<u>0%</u>	<u>0%</u>	<u>0%</u>	<u>0%</u>
Total Northwest BC	1%	1%	2%	1%
Port Hardy	2%	3%	2%	2%
Port McNeill	4%	4%	3%	4%
Other North Van Island	6%	6%	5%	6%
Campbell River	31%	32%	35%	33%
Other Mid-Van Island	18%	18%	20%	19%
Nanaimo & Duncan	10%	9%	6%	8%
Southern V.I.	9%	7%	5%	7%
Total Vancouver Island:	79%	79%	77%	78%
Sea-To-Sky Region:				

Central Coast Survey Results - % of Employees by Residence Location	CC 2003	CC 2004	CC 2005	CC 3 Year Average
Squamish	0%	0%	0%	0%
Whistler	0%	0%	0%	0%
Pemberton	0%	0%	0%	0%
Lions Bay	0%	0%	0%	0%
Other in Sea-to-Sky	0%	0%	0%	0%
Sub-Total Sea-to-Sky	0%	0%	0%	0%
Lower Mainland	9%	10%	11%	10%
Other (please specify):	3%	3%	3%	3%
Total	100%	100%	100%	100%

Note: The questionnaire requested data by community and by sub-region, but for some regions such as the Central Coast and the Terrace/Kitimat sub-region, most survey participants reported only a regional total.

Central Coast Survey Results - Person Years (PY) of Direct Harvesting Related Employment per 1,000 m3 of Timber Harvested	CC 2003	CC 2004	CC 2005	CC 3 Year Average
Harvesting/ Falling	0.408	0.284	0.293	0.315
Planning & Administration	0.091	0.054	0.051	0.061
Log Hauling / Trucking	0.013	0.011	0.008	0.010
Barging / Towing	0.024	0.017	0.019	0.019
Road Building	0.058	0.044	0.044	0.047
Silviculture	0.050	0.037	0.039	0.040
Other	0.001	0.002	0.000	0.001
Total	0.646	0.449	0.453	0.493
Direct Employment by Employee Residence:				
Central Coast	0.037	0.022	0.022	0.025
North Coast	0.013	0.009	0.013	0.011
Terrace/Kitimat/ Other Northwest	0.008	0.006	0.008	0.007
Vancouver Island	0.509	0.355	0.347	0.385
Sea-to-Sky	0.000	0.000	0.000	0.000
Lower Mainland	0.059	0.044	0.051	0.050
Other	0.020	0.014	0.013	0.015
Total	0.646	0.449	0.453	0.493

Survey Coverage	CC 2003	CC 2004	CC 2005	CC 3 Year Average
Total Harvest Based on MOFR & Other Data	1,737,662	2,739,513	3,406,465	2,627,880
Reported Volume	1,343,946	2,201,823	2,639,808	2,061,859
Survey Coverage	77%	80%	77%	78%

Note: Reported survey volumes in this table exclude two small licenses for which survey data were incomplete.

APPENDIX 3 MID-COAST SURVEY RESULTS

This Appendix provides data for the Mid-Coast sub-region, which includes the Mid-Coast TSA and the TFLs that are within those boundaries including TFL 25-Block 5 and TFL 39 - Block 7.

Mid-Coast Survey Results - Timber Exports and Destination of Timber Harvest from the Mid-Coast (TSA & TFLs)	Mid-C 2003	Mid-C 2004	Mid-C 2005	Mid-C 3 Year Average
Total Export Volumes (m3)	0	0	0	0
Total Reported Harvested Volumes (m3)	388,073	585,257	658,345	543,892
Percent of Total Volumes Harvested:				
Export Volume	0.0%	0.0%	0.0%	0.0%
BC Interior	0.0%	0.0%	0.0%	0.0%
Central Coast	0.0%	0.0%	0.0%	0.0%
North Coast/ Terrace	0.0%	0.0%	0.0%	0.0%
Sea-to-Sky Region	0.0%	0.0%	0.0%	0.0%
North Vancouver Island	0.0%	0.0%	0.0%	0.0%
Campbell River & Mid-Island	0.0%	0.0%	0.0%	0.0%
Nanaimo & South Island	25.7%	18.3%	16.0%	16.3%
Lower Mainland	32.0%	47.7%	36.5%	45.6%
Vancouver Log Market	<u>42.2%</u>	<u>34.0%</u>	<u>47.5%</u>	<u>38.1%</u>
TOTAL VOLUME	100.0%	100.0%	100.0%	100.0%

Mid-Coast Survey Results - Harvesting Employment - Person Years (PY)	Mid-C 2003	Mid-C 2004	Mid-C 2005
Harvesting/ Falling	189	209	192
Planning & Administration	35	29	33
Log Hauling / Trucking	5	6	5
Barging / Towing	15	18	17
Road Building	38	34	62
Silviculture	19	20	31
Other	0	0	0
Total	300	317	339

Note: Most licensees and their contractors included all log hauling and trucking as part of harvesting; harvesting also includes camp operations and heli-yarding.

Mid-Coast Survey Results - Full-Time & Part-Time Harvesting Employment	Full-Time Jobs			% Residing in CC
	Mid-C 2003	Mid-C 2004	Mid-C 2005	
Harvesting/ Falling	142	132	135	8.5%
Planning & Administration	19	17	21	0.0%
Log Hauling / Trucking	4	0	0	0.0%
Barging / Towing	10	11	13	0.0%
Road Building	34	26	45	1.3%
Silviculture	11	8	10	0.0%
Other	<u>0</u>	<u>0</u>	<u>0</u>	<u>0.0%</u>
Total	220	195	225	6%

Mid-Coast Survey Results - Part-Time Employment	Part-Time Jobs			% Residing in CC
	Mid-C 2003	Mid-C 2004	Mid-C 2005	
Harvesting/ Falling	159	220	161	4%
Planning & Administration	47	60	79	2%
Log Hauling / Trucking	4	14	15	12%
Barging / Towing	34	30	36	3%
Road Building	5	12	61	10%
Silviculture	80	119	162	24%
Other	<u>0</u>	<u>11</u>	<u>0</u>	<u>0%</u>
Total	329	466	514	9%

Note: Full-time employees who did not work a minimum 180 days per year are counted as part-time; also, some companies whose employees also work outside the North Coast/ Central Coast region are counted as part-time workers.

Mid-Coast Survey Results - % of Employees by Residence Location	Mid-C 2003	Mid-C 2004	Mid-C 2005	Mid-C 3 Year Average
Central Coast:				
Hagensborg	1%	1%	1%	1%
Bella Coola	1%	1%	1%	1%
Bella Bella	1%	1%	1%	1%
Kingcome River	0%	0%	0%	0%
Klemtu	4%	3%	3%	3%
Other in Central Coast	<u>5%</u>	<u>4%</u>	<u>3%</u>	<u>4%</u>
Sub-Total Central Coast	12%	11%	9%	11%
North Coast:				
Prince Rupert	1%	1%	1%	1%
Port Simpson	0%	1%	0%	0%
Port Edward	0%	0%	0%	0%
Kitkatla	0%	0%	0%	0%
Hartley Bay	0%	0%	0%	0%
Other in North Coast	<u>0%</u>	<u>0%</u>	<u>1%</u>	<u>0%</u>
Sub-Total North Coast	2%	2%	2%	2%
Terrace	2%	2%	2%	2%
Kitimat	0%	0%	0%	0%
Other Northwest BC	<u>0%</u>	<u>0%</u>	<u>0%</u>	<u>0%</u>
Total Northwest BC	2%	2%	2%	2%
Port Hardy	2%	3%	3%	3%
Port McNeill	1%	1%	1%	1%
Other North Van Island	7%	5%	7%	6%
Campbell River	22%	27%	28%	26%
Other Mid-Van Island	16%	17%	17%	17%
Nanaimo & Duncan	5%	5%	5%	5%
Southern V.I.	13%	9%	8%	10%
Total Vancouver Island:	66%	66%	69%	67%

Mid-Coast Survey Results - % of Employees by Residence Location	Mid-C 2003	Mid-C 2004	Mid-C 2005	Mid-C 3 Year Average
Sea-To-Sky Region:	0%	0%	0%	0%
Squamish	0%	0%	0%	0%
Whistler	0%	0%	0%	0%
Pemberton	0%	0%	0%	0%
Lions Bay	0%	0%	0%	0%
Other in Sea-to-Sky	0%	0%	0%	0%
Sub-Total Sea-to-Sky	0%	0%	0%	0%
Lower Mainland	11%	12%	12%	12%
Other (please specify):	6%	6%	6%	6%
Total	100%	100%	100%	100%

Note: The questionnaire requested data by community and by sub-region, but for some regions such as the Central Coast and the Terrace/Kitimat sub-region, most survey participants reported only a regional total.

Mid-Coast Survey Results - Person Years (PY) of Direct Harvesting Related Employment per 1,000 m3 of Timber Harvested	Mid-C 2003	Mid-C 2004	Mid-C 2005	Mid-C 3 Year Average
Harvesting/ Falling	0.486	0.357	0.292	0.362
Planning & Administration	0.089	0.049	0.050	0.059
Log Hauling / Trucking	0.013	0.010	0.007	0.009
Barging / Towing	0.039	0.031	0.026	0.031
Road Building	0.097	0.059	0.094	0.082
Silviculture	0.050	0.035	0.047	0.043
Other	0.000	0.001	0.000	0.000
Total	0.774	0.542	0.515	0.586
Direct Employment by Employee Residence:				
Central Coast	0.097	0.058	0.046	0.062
North Coast	0.016	0.013	0.010	0.012
Terrace/Kitimat/ Other Northwest	0.016	0.013	0.011	0.013
Vancouver Island	0.512	0.360	0.355	0.394
Sea-to-Sky	0.000	0.000	0.000	0.000
Lower Mainland	0.085	0.064	0.062	0.068
Other	0.048	0.034	0.033	0.037
Total	0.774	0.542	0.515	0.586

Mid-Coast Survey Coverage	Mid-C 2003	Mid-C 2004	Mid-C 2005	Mid-C 3 Year Average
Total Harvest Reported by MOF	439,016	755,228	949,296	714,513
Reported Volume	388,073	585,257	658,345	543,892
Survey Coverage	88%	77%	69%	76%

APPENDIX 4 SOUTH CENTRAL COAST SURVEY RESULTS

The South Central Coast (South-CC) includes the mainland portion of the Kingcome and Strathcona TSAs and the TFLs and TLs that are within or adjacent to those TSA boundaries.

South-CC Survey Results - Timber Exports and Destination of Timber Harvest from the South CC	South-CC 2003	South-CC 2004	South CC 2005	South-CC 3 Year Average
Total Export Volumes (m3)	18,359	311	20,000	12,890
Total Reported Harvested Volumes (m3)	955,873	1,616,566	1,981,463	1,517,967
Percent of Total Volumes Harvested:				
Export Volume	1.5%	0.0%	1.1%	0.8%
BC Interior	0.0%	0.0%	0.0%	0.0%
Central Coast	0.0%	0.0%	0.0%	0.0%
North Coast/ Terrace	0.0%	0.0%	0.0%	0.0%
Sea-to-Sky region	0.0%	0.0%	0.0%	0.0%
North Vancouver Island	0.0%	0.0%	0.0%	0.0%
Campbell River & mid-Island	12.9%	10.3%	8.1%	10.1%
Nanaimo & South Island	8.1%	7.3%	5.2%	6.7%
Lower Mainland	25.2%	31.2%	33.8%	30.8%
Vancouver Log Market	52.2%	51.2%	51.8%	51.5%
TOTAL VOLUME	100.0%	100.0%	100.0%	100.0%

South-CC Survey Results - Harvesting Employment - Person Years (PY)	South-CC 2003	South-CC 2004	South CC 2005
Harvesting/ Falling	360	415	580
Planning & Administration	88	90	102
Log Hauling / Trucking	12	19	16
Barging / Towing	17	20	32
Road Building	40	62	54
Silviculture	48	61	71
Other	1	4	1
Total	567	671	856

Note: Most licensees and their contractors included all log hauling and trucking as part of harvesting; harvesting also includes camp operations and heli-yarding.

South-CC Survey Results - Full-Time & Part-Time Harvesting Employment	Full-Time Jobs			% Residing in CC
	South-CC 2003	South-CC 2004	South CC 2005	
Harvesting/ Falling	290	333	543	2.7%
Planning & Administration	69	72	92	0.0%
Log Hauling / Trucking	5	8	10	0.0%
Barging / Towing	16	18	31	0.0%
Road Building	29	46	49	0.0%
Silviculture	30	30	42	1.9%
Other	4	3	5	8.3%
Total	445	510	771	2%

South-Central Coast Survey Results - Part-Time Employment	Part-Time Jobs			% Residing in CC
	South-CC 2003	South-CC 2004	South CC 2005	
Harvesting/ Falling	182	169	95	0%
Planning & Administration	46	39	28	0%
Log Hauling / Trucking	19	21	17	0%
Barging / Towing	17	15	17	8%
Road Building	20	23	11	0%
Silviculture	117	146	172	0%
Other	3	24	3	0%
Total	404	437	343	0%

Note: Full-time employees who did not work a minimum 180 days per year are counted as part-time; also, some companies whose employees also work outside the North Coast/ Central Coast region are counted as part-time workers.

South-Central Coast Survey Results - % of Employees by Residence Location	South-CC 2003	South-CC 2004	South CC 2005	South-CC 3 Year Average
Central Coast:				
Hagensborg	0%	0%	0%	0%
Bella Coola	0%	0%	0%	0%
Bella Bella	0%	0%	0%	0%
Kingcome River	0%	0%	1%	0%
Klemtu	0%	0%	0%	0%
Other in Central Coast	<u>0%</u>	<u>0%</u>	<u>1%</u>	<u>1%</u>
Sub-Total Central Coast	1%	1%	2%	1%
North Coast:				
Prince Rupert	1%	0%	1%	1%
Port Simpson	0%	0%	1%	0%
Port Edward	0%	0%	0%	0%
Kitkatla	0%	0%	0%	0%
Hartley Bay	0%	0%	0%	0%
Other in North Coast	<u>1%</u>	<u>1%</u>	<u>1%</u>	<u>1%</u>
Sub-Total North Coast	2%	2%	3%	2%
Terrace	1%	0%	2%	1%
Kitimat	0%	0%	0%	0%
Other Northwest BC	<u>0%</u>	<u>0%</u>	<u>0%</u>	<u>0%</u>
Total Northwest BC	1%	0%	2%	1%
Port Hardy	2%	2%	2%	2%
Port McNeill	6%	7%	4%	6%
Other North Van Island	5%	6%	4%	5%
Campbell River	37%	36%	39%	38%
Other Mid-Van Island	19%	19%	22%	20%
Nanaimo & Duncan	13%	13%	6%	10%
Southern V.I.	6%	6%	3%	5%
Total Vancouver Island:	88%	88%	82%	86%

South-Central Coast Survey Results - % of Employees by Residence Location	South-CC 2003	South-CC 2004	South CC 2005	South-CC 3 Year Average
Sea-To-Sky Region:	0%	0%	0%	0%
Squamish	0%	0%	0%	0%
Whistler	0%	0%	0%	0%
Pemberton	0%	0%	0%	0%
Lions Bay	0%	0%	0%	0%
Other in Sea-to-Sky	0%	0%	0%	0%
Sub-Total Sea-to-Sky	0%	0%	0%	0%
Lower Mainland	8%	8%	11%	9%
Other (please specify):	1%	1%	0%	1%
Total	100%	100%	100%	100%

Note: The questionnaire requested data by community and by sub-region, but for some regions such as the Central Coast and the Terrace/Kitimat sub-region, most survey participants reported only a regional total.

South-Central Coast Survey Results - Person Years (PY) of Direct Harvesting Related Employment per 1,000 m3 of Timber Harvested	South-CC 2003	South-CC 2004	South CC 2005	South-CC 3 Year Average
Harvesting/ Falling	0.377	0.257	0.293	0.298
Planning & Administration	0.092	0.056	0.051	0.062
Log Hauling / Trucking	0.013	0.012	0.008	0.010
Barging / Towing	0.018	0.012	0.016	0.015
Road Building	0.042	0.038	0.027	0.034
Silviculture	0.050	0.038	0.036	0.039
Other	0.001	0.003	0.000	0.001
Total	0.594	0.415	0.432	0.460
Direct Employment by Employee Residence:				
Central Coast	0.006	0.002	0.009	0.006
North Coast	0.011	0.007	0.015	0.011
Terrace/Kitimat/ Other Northwest	0.004	0.001	0.007	0.004
Vancouver Island	0.522	0.367	0.354	0.395
Sea-to-Sky	0.000	0.000	0.000	0.000
Lower Mainland	0.046	0.034	0.046	0.042
Other	0.005	0.003	0.002	0.003
Total	0.594	0.415	0.432	0.460

Survey Coverage	South-CC 2003	South-CC 2004	South CC 2005	South-CC 3 Year Average
Total Harvest Based on MOFR data	1,298,646	1,984,285	2,457,169	1,913,367
Reported Volume	955,873	1,616,566	1,981,463	1,517,967
Survey Coverage	74%	81%	81%	79%

Note: The harvest reported by MOFR is an estimate of the mainland portion of the harvest for the Kingcome TSA and the Strathcona TSA, as well as the volumes reported for the mainland portions of various TFLs by the licensees; reported survey volumes exclude two small licenses for which survey data were incomplete.

APPENDIX 5 LIST OF KEY REFERENCES

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